Federal Aviation Administration

Air Transportation
Center of Excellence
for
Advanced Materials

Final Solicitation

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Issued by the:

Federal Aviation Administration
- Air Transportation Centers of Excellence Program -
The Office of Aviation Research

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OVERVIEW

The Federal Aviation Administration (FAA) intends to establish an Air Transportation Center of Excellence (COE) for Advanced Materials. The goal of this endeavor is to create a cost-sharing partnership of academia, industry, and government that will initially focus on advanced materials and nanostructed materials technology. The purpose is to forge a union between the public sector (the FAA, the Department of Defense (DoD), the National Aeronautics and Space Administration (NASA), airport authorities, state and local governments, etc.), the private sector (airlines, manufacturers, etc.), and academic institutions to create a world-class consortium that will identify solutions for existing and anticipated advanced materials and structures problems. The FAA expects that the COE shall perform basic and applied research through engineering development and prototyping over the next three to ten years.

To this end, the FAA is soliciting proposals from accredited institutions of higher education, addressing the establishment of the aforementioned COE. The FAA intends to enter into Cooperative Agreements with the successful team members and thereafter award grants and delivery order contract(s) consisting of cost reimbursement, cost sharing, and/or fixed price.

The FAA intends to invest between $300,000.00 and $500,000.00 in the first year and a minimum of $300,000 per year for the next two years of the COE.

1. FAA AVIATION RESEARCH CENTERS OF EXCELLENCE PROGRAM

The FAA has long had a successful partnership with the nation's academic research community, working with U.S. colleges and universities to foster research by both faculty and students that has made significant contributions to the advancement of aviation science and technology. This research has provided the agency and industry a high return on its investment.

Research that makes an immediate impact and provides solutions to aviation problems in the short term is crucial to the FAA's mission and is an integral element of the FAA's commitment to aviation. Equally important is long-term research that is designed to advance aviation technology and to meet the future needs of the aviation community.

The FAA has expanded its commitment to support the long-term academic research that is pivotal to the future of aviation through the establishment of Air Transportation Centers of Excellence. This is an innovative program that makes it possible for the FAA to work in a true partnership with the academic community and industry to advance aviation technology in a collaborative and coordinated way.

Through the COE strategy and structure, the FAA enhances internal research efforts by accessing the various talents of nationally recognized academic and industry research scientists. By establishing major research centers throughout the country, the agency proactively creates a pool of technical professionals trained in aviation-related research areas, helps finance graduate education, fosters cooperative FAA-university-industry research and development efforts and, ultimately, improves the national airspace system.

The COEs are required by Congress to provide matching funds, which solidify a significant partnership between the COE and the FAA. Through this partnership, the government, academic institutions, and industry leverage the resources available for aviation research and maximize technological competence. The FAA also awards contracts to successful applicants in a COE competition. This authority gives the COE the latitude to take basic research successes and continue on to engineering development and prototyping.

Scientists may be drawn from the academic institution's faculty and students, industry, the FAA, and other government agencies. Through COE intergovernmental personnel agreements, scientists may work at an academic institution, an FAA location, or an industry location. Each selected institution enters into a long-term Cooperative Agreement to conduct critical research in areas of aviation-related technology that are critical to the FAA's mission and long-term vision.

To foster the terms of this Cooperative Agreement, research scientists and academicians provide technical expertise to relevant FAA projects and participate on major planning and investigative committees. They are also required to conduct annual research reviews, actively participate in a Joint COE Annual Conference, and host seminars and reviews to disseminate research results.

In response to this solicitation, qualified institutions must submit proposals for consideration. Applicants are required to show the facilities, equipment, matching funds commitments, and other financial resources that are available to meet statutory requirements.

Proposals are reviewed and evaluated on a competitive basis by a panel of subject matter experts and management officials. Each proposal is evaluated to determine the extent to which institutions are able to provide a quality environment for aviation research and to determine whether the institutions meet the selection criteria established by Congress.

As stated in Public Law 101-508, institutions being considered for selection as a COE must demonstrate their ability to meet the following criteria:

- *The extent to which the needs of the State in which the applicant is located are representative of the needs of the region for improved air transportation services and facilities.*
- *The demonstrated research and extension resources available to the applicant to carry out this section.*
- *The ability of the applicant to provide leadership in making national and regional contributions to the solution of both long-range and immediate air transportation problems.*
- *The extent to which the applicant has an established air transportation program.*
- *The demonstrated ability of the applicant to disseminate results of air transportation research and educational programs through a statewide or region wide continuing education program.*
- *The projects the applicant proposes to carry out under the grant.*
  Specific projects will be defined, evaluated, and supported on an ongoing basis throughout the life of the COE.

2. STATEMENT OF WORK

2.1 Scope of Work

The successful applicant(s) shall work closely with industry and government agencies on safety and certification initiatives that are related to existing and near- and long-term applications of composites and advanced materials to large transport commercial aircraft products. The overall goal is to ensure safe and reliable use of these materials in aircraft applications. This goal is dependent on a trained workforce that has a good understanding of the relationships between design, manufacturing, operations, and maintenance. Specific tasks will evaluate data from past applications, perform focused research, and derive standard engineering practices. This work will support the FAA in development of associated policies, guidance, and training. Finally, the successful applicant(s) will play an important role in technology transfer, training, and continuing education for the aircraft industry and regulators. The initiatives will be defined and prioritized by an FAA process linked to certification and service experiences. The initial technology areas to be addressed by the Center are discussed in the following sections.

2.2 Material Standardization and Shared Databases

Shared material databases and specifications for metals commonly used in aircraft products are available internationally. The control of composites and other advanced materials applied to aircraft products has not reached this same level of maturity. Instead, databases and specifications are often company-specific, making it difficult for the industry to efficiently stabilize the materials. There are a number of related safety and certification issues associated with material control, which require solutions. In recent years, the FAA has worked with industry, academia, and other government agencies to achieve progress in composite material standardization and shared databases. More work is needed for composites and other advanced materials in the following areas:

- Investigate the existing state-of-the-art technology in material control and conduct research into methods and procedures that support industry needs.

- Identify key characteristics and examine the relationships between physical, chemical, and mechanical properties used to qualify and control materials.

- Work with international organizations (e.g., ASTM) to develop standard test methods, as needed, for material qualification, control, and shared databases.

- Work with international organizations (e.g., SAE P-17) to achieve reliable control of materials through development of engineering guidelines and criteria for material and process specifications.

- Work with international organizations (e.g., MIL-HDBK-17) to establish shared database standards and statistical procedures to meet certification requirements.

- Perform tests and analyze data to support material suppliers and users in validating shared database standards.

- Identify the limits in shared database standards and evaluate factors leading to material variability.

- Develop coursework and conduct workshops to train the workforce on acceptable engineering practices for material control, including test methods, shared database standards, and material and process specifications.

2.3 Bonded Joints Processing Issues

Stringent process and material control is essential for the successful application of bonded joints to large transport commercial aircraft structure. Close integration of the efforts of design, manufacturing, and maintenance disciplines is needed to ensure safety. Some key factors affecting the structural integrity of bonded joints include raw material control, surface preparation and manufacturing, and scaling issues (e.g., cured dimensional tolerances of mating parts, variations in bondline thickness, fit-up, tooling, and repeatability). Certification guidance and policies, documented standards, and sufficient training are needed to ensure consistent and reliable engineering practices throughout the industry. Additional effort is needed in the following areas:

- Investigate the existing state of the art in material and process controls for bonded structures and conduct research into methods and procedures that support industry needs.

- Identify key characteristics and examine the relationships between physical, chemical, and mechanical properties used to qualify and control bonding materials and processes.

- Evaluate surface preparation procedures used by industry for bonded structure and determine process and material controls to avoid contamination and ensure long-term structural performance.

- Work with international organizations (e.g., ASTM) to develop standard test methods, as needed for qualification and control of materials and processes used for structural bonding.

- Work with international organizations (e.g., SAE P-17, CACRC, TTCP, and MIL-HDBK-17) to establish engineering guidelines for reliable control of processes and materials used for bonded structures.

- Perform tests and analyze data to support material suppliers and manufacturers in validating shared database standards for bonded structures.

- Identify the limits in shared database standards and evaluate factors leading to process-induced variability in the performance of bonded structures.

- Work with industry to study manufacturing scaling issues and validate design details, analysis procedures and process controls, which ensure the structural integrity of bonded large transport commercial aircraft structures.

- Develop coursework and conduct workshops to train the workforce on engineering standards for bonded structure, including design, manufacturing, and maintenance considerations, as well as the essential factors for reliable material and process control of bonded structures.

2.4 Structural Substantiation

Aircraft products that use composites and other advanced materials have applied a building block approach to structural substantiation. Although such an approach has some similarities with that traditionally applied for metal structure, there are unique considerations related to the integrated design details and manufacturing processes used for advanced materials. These factors must be understood in deriving relationships between the various scales of material and process control and structural evaluation of design details. There are other issues that need to be addressed, such as manufacturing defects, service damage scenarios, and environmental effects, which are unique to composite materials. Analysis and test procedures also continue to evolve for composites and must be validated for reliable applications to structures. More work is needed for composites, bonding, or other advanced materials and processes in the following areas:

- Investigate scaling issues, design details, and other unique factors affecting the performance of large transport commercial aircraft structures.

- Work with industry to study undetectable damage scenarios and environments, which are characteristic of each class of large transport commercial aircraft products where applications are evident, to ensure adequate coverage in structural substantiation.

- Work with international organizations (e.g., MIL-HDBK-17) to establish shared database standards and statistical procedures to evaluate structures in meeting certification requirements.

- Validate analysis and test procedures used to characterize large transport commercial aircraft structures.

- Evaluate manufacturing process controls needed to ensure sufficient links between different scales of building block analyses and tests.

- Develop coursework and conduct workshops to train the workforce on standard engineering practices for substantiation of large transport commercial aircraft structures.

2.5 Damage Tolerance and Durability

An understanding of the effects of repeated load, environment, and damage on the performance of structures that includes composites, bonding, and other advanced materials is essential to safety. The critical manufacturing defects, damage, and loading conditions that affect these materials are often different than those important to metal structures. The analyses, tests, and inspection procedures applied for metal structures are also more mature. Equivalent or higher levels of safety must be established for reliable use of structures that use composites, bonding, or other advanced materials and processes. To achieve this goal, additional work is needed for composites, bonding, or other advanced materials and processes in the following areas:

- Study scaling issues, design details, and other factors affecting damage tolerance and durability in large transport commercial aircraft structure.

- Work with industry to study damage scenarios, repeated load conditions, and environmental effects characteristic of service for each class of aircraft product where applications are evident, and to help define damage tolerance and durability criteria for structures.

- Investigate service inspection procedures for reliable damage detection and evaluate quantitative damage metrics suitable for structural analyses.

- Establish test procedures to simulate critical damage and evaluate the resistance to repeated loads and residual strength for large transport commercial aircraft applications.

- Work with international organizations (e.g., MIL-HDBK-17) to establish engineering guidelines to evaluate damage tolerance and durability of structures in meeting certification requirements.

- Validate analysis methods used to characterize the damage tolerance and durability of structures.

- Develop coursework and conduct workshops to train the workforce on standard engineering practices for evaluation of damage tolerance and durability of large transport commercial aircraft structure.

- Evaluate the effects of various damage scenarios on the aero-elastic performance and flutter behavior of large transport commercial aircraft control surfaces.

2.6 Maintenance Practices

The continued airworthiness of large transport commercial aircraft products that use composites, bonding, and other advanced materials and processes depend on repeatable and reliable maintenance practices. Inspection and other maintenance procedures, which

are consistent with the design criteria and requirements, must be established for structural details. Inspection methods that detect damage and help quantify metrics that relate to structural performance are desired. Field repair designs and procedures are also needed to fix damage found in service. Validation of inspection procedures and repairs is an important part of the structural substantiation performed in product certification. The issues of material control, shared databases, and process scale-up are crucial to bonded repairs.

More work is needed for composites, bonding, and other advanced materials and processes in the following areas:

- Work with industry on repair-scaling issues and validate related design details, analysis procedures, and process controls, which ensure structural integrity.

- Study design and processing issues crucial to reliable bonded repairs and identify limits of process-induced variability.

- Validate inspection procedures as related to the damage tolerance and durability assessments of aircraft structures.

- Work with industry to establish guidelines for operations and maintenance disposition of possible damage occurring during known service incidents (i.e., anomalous flight conditions, ground handling, or accidental impact events).

- Validate analysis procedures for bolted and bonded repairs of composites and other advanced materials.

- Work with international organizations (e.g., SAE P-17, CACRC, and MIL-HDBK-17) to establish engineering guidelines and databases for reliable control of processes and materials used for structural repair.

- Develop coursework and conduct workshops to train the workforce on reliable maintenance practices for aircraft structure.

2.7 Advanced Material Forms and Processes

The full potential of composites, bonding, and other advanced materials and processes have not been realized. Industry continues to pursue performance advantages and cost savings possible with technology innovation, which may be classified as advanced material forms and processes. Such pursuits must yield a balanced development of structures, manufacturing, and maintenance technology that allow the application of these new materials and processes to large transport commercial aircraft products. Without a thorough coordination of technological advances throughout the industry, the necessary applied research, standards, and training will not exist for safe and reliable applications.

Many existing government programs are exploring accelerated insertion of advanced material forms and processes. For example, advanced material forms and processes receiving attention include dry-fiber preforms and liquid-molding processes. Work is needed in the following areas:

- Study the unique behavior of advanced material forms and processes for material and process control, structural integrity, damage tolerance, durability, maintenance practices, flammability resistance, and crashworthiness.

- Work with industry on scaling issues for advanced material forms and processes and validate related design details, analysis procedures, and process controls, which ensure structural integrity and long-term performance.

- Validate inspection procedures, analysis techniques, and test methods needed to control the manufacturing and maintenance processes, and ensure the structural integrity of advanced material forms and processes.

- Work with international organizations (e.g., ASTM) to develop standard test methods, as needed, for advanced material forms and processes.

- Work with international organizations (e.g., SAE P-17 and MIL-HDBK-17) to achieve reliable/standard control of advanced material forms and processes through development of engineering guidelines and criteria for specifications.

- Develop coursework and conduct workshops to train the workforce on standard engineering practices for advanced material forms and processes.

2.8 Flammability and Crashworthiness

Engineering standards and requirements continue to evolve for incidents and accidents involving survivable fire and crash conditions. As composites, bonding, and other advanced materials and processes are applied to large transport commercial aircraft products, equivalent or higher levels of safety are needed versus the traditional metal materials and processes, which they replace. Work is needed for composites, bonded structures, and other advanced materials and processes in the following areas to ensure adequate fire resistance and endurance and crashworthiness in aircraft structure:

- Work with industry to study the flammability characteristics for candidate large transport commercial aircraft applications.

- Work with industry to investigate the crashworthiness of large transport commercial aircraft structure to determine suitability for new applications.

- Work with international organizations (e.g., ASTM) to develop standard test methods to study the flammability and crashworthiness of large transport commercial aircraft structure.

- Work with international organizations (e.g., MIL-HDBK-17) to establish engineering guidelines to evaluate fire resistance and endurance and crashworthiness of structures in meeting certification requirements.

- Develop coursework and conduct workshops to train the workforce on standard engineering practices for evaluating the flammability and crashworthiness of large transport commercial aircraft structures.

2.9 Nanotechnology for Composite Structures

Industry continues to pursue performance advantages and cost savings possible with technology innovation, which may be classified as nanostructured materials. Such pursuits must yield a balanced development of structures, manufacturing, and maintenance technology that allow the application of these new materials to aircraft products. Without a thorough coordination of technological advances throughout the industry, the necessary applied research, standards, and training will not exist for safe and reliable applications. Many existing government programs are exploring accelerated insertion of nanocomposites and other aerospace materials. There has been a significant research investment in nanotechnology in recent years. Work is needed in the following areas:

- Monitor progress in nanotechnology development, which is being pursued by industry for large transport commercial aircraft applications, and perform applied research to support FAA, NASA, and DoD needs in understanding unique issues crucial to safety and certification.

- Study the unique behavior of nanocomposites for material and process control, structural integrity, damage tolerance, durability, maintenance practices, flammability resistance, and crashworthiness.

- Work with industry on scaling issues for nanostructured materials, forms, and processes; and validate related design details, analysis procedures, and process controls, which ensure structural integrity and long-term performance.

- Validate inspection procedures, analysis techniques, and test methods needed to control the processes (manufacturing and maintenance), and ensure the structural integrity of nanostructered material forms and processes.

- Work with international organizations (e.g., ASTM) to develop standard test methods, as needed, for nanostructed material forms and processes.

- Work with international organizations (e.g., SAE P-17 and MIL-HDBK-17) to achieve reliable/standard control of nanostructed material forms and processes through development of engineering guidelines and criteria for specifications.

- Develop coursework and conduct workshops to train the workforce on standard engineering practices for nanostructed material forms and processes.

2.10 Life Management of Materials for Improved Aircraft Maintenance Practices

Aging aircraft face increased risk of failure from structural damage accumulation and require more extensive depot maintenance. To address this issue, the FAA and DoD have been pursuing the development of enhanced capabilities for aircraft sustainment. Development of health-monitoring instrumentation and methodologies for life management of materials are needed for enabling a bold new sustainment capability for efficient and effective maintenance of aircraft damage. Health-monitoring approaches are needed for resolving several major problems with current maintenance practices such as planned teardown inspections of required aircraft structures with low probability of actual damage occurrence and with structural damage imparted during the maintenance process. Work is needed in the following areas:

- Study and develop fundamental and applied research for understanding and predicting material degradation mechanisms and failure modes for material systems used in aircraft structures, turbine engines, wiring, landing gear, thermal protection systems, and coatings.

- Study and develop novel onboard sensing technologies for monitoring the material state in important inspection locations that cannot be accessed by current nondestructive evaluation techniques. Special emphasis is given to embedded sensors for monitoring crack and corrosion damage in aging structures, embedded sensors for monitoring degradation of thermal protection systems, and embedded sensors for monitoring degradation of aging wiring systems.

- Study and develop physics-based models of material sensor systems and smart materials for analyzing alternative strategies for distributed sensing approaches and for sensor network optimization and integration. Special emphasis is given to multi-mode NDE data fusion development; applying system engineering methods for configuration design of distributed sensor systems; and development of autonomous sensor networks with power scavenging and wireless communication.

- Study and develop material prognostics (i.e., estimating the remaining useful life) and maintenance forecasting capabilities.

- Validate sensor system and smart material developments and demonstrate health-monitoring instrumentation and life extension methodologies on actual aircraft.

- Develop coursework and conduct workshops to train the workforce on health-monitoring instrumentation and life extension methodologies for improved aircraft maintenance practices.

3 EVALUATION CRITERIA

Members of this Center of Excellence will be selected based on the formal evaluation criteria set forth in Public Law 101-508. Each applicant is requested to address the individual evaluation factors, as these are the sole basis for the selection.

3.1 **Criterion 1: The Extent to Which the Needs of the State in Which the Applicant is Located are Representative of the Needs of the Region for Improved Air Transportation Services and Facilities**

Evaluation Factors:

- The applicant(s) must describe the capabilities, resources, and commitment to composites, bonding, life management of materials, and other advanced material and process development for the state(s) and region(s) in which they are located.

- The applicant(s) must show that the large transport commercial aircraft industry in the state(s) and region(s) they are located have actively pursued advanced materials research and training with them.

3.2 **Criterion 2*: The Demonstrated Research and Extension Resources Available to the Applicant(s) to Carry Out this Section*** [Relating to Public Law 101-508]

Evaluation Factors:

- Relevant partnerships with members of the large transport commercial aviation industry.

- Recent grants and contracts awarded to the applicant(s), which focus on composites, bonding, life management of materials, and other advanced materials and processes.

3.3 **Criterion 3: *The Ability of the Applicant to Provide Leadership in Making National and Regional Contributions to the Solution of Both Long-Range and Immediate Air Transportation Problems.***

Evaluation Factors:

- Significant experience with large transport commercial aviation industry and/or government agencies related to composites, bonding, life management of materials, and other advanced materials and processes.

- High standing within the national and international arena of aerospace materials and structures research.

- Evidence of ability to obtain matching funds.

- If the offeror proposes as a member of a team of universities, it must provide a comprehensive management plan detailing how the schools will coordinate on research efforts, and how the costs of administering the Center will be apportioned and funded.

3.4 **Criterion 4:** ***The Extent to Which the Applicant has an Established Air Transportation Program.***

Evaluation Factors:

The applicant must demonstrate:

- A history of training scientists, engineers, planners, economists, technicians, etc.
- Research experience related to the issues of using composites, bonding, life management of materials, and other advanced materials and processes for large transport commercial aircraft structures.
- Aeronautical; Aerospace, Mechanical, Chemical, Electrical, and Civil Engineering; Material Sciences; and Applied Physics curricula.
- Significant placement of students in the large transport commercial aviation industry, academia, and government jobs related to advanced materials and aircraft structures.
- Credible academic standards.

3.5 **Criterion 5:** ***The Demonstrated Ability of the Applicant to Disseminate Results of Air Transportation Research and Educational Programs Through a Statewide or Region Wide Continuing Education Program***

Evaluation Factors:

- The applicant(s) must provide evidence that the results of research evolved to form a basis for standard engineering practice and training.
- The applicant(s) must describe relationships with standards organizations involved in composites, bonding, and other materials and processes.
- The applicant(s) should highlight how previous contributions in research and education helped the large transport commercial aviation industry and the FAA.

The applicant(s) must also demonstrate:

- Academic programs, such as continuing education, and distance learning, that address the needs of large transport commercial aircraft structures.

- Experience in conducting seminars, symposia, and workshops related to the applications of composites, bonding, and other advanced materials and processes.

- Experience using the Internet to disseminate results of research and enhance educational programs.

3.6 **Criterion 6: *The Research Projects the Applicant(s) Propose to Carry Out Under this Project***

Evaluation Factors:

The applicant(s) shall submit a concise program plan that reflects the needs for large transport commercial aircraft structures research in composites, bonding, and other materials and processes as defined in the scope of work. The plan shall not exceed 25 pages of the 125-page limit (see section 6.3 b). The plan shall contain no more than ten projects, at least one, but no more than three for each of the seven initial technology areas covered under the scope of work, for evaluation purposes only. These projects will not necessarily be funded if the applicant(s) is selected. The FAA is interested in how the applicant(s) will conduct and manage research within the COE. In addition to the selection criteria provided by Congress, proposals will be evaluated on the following evaluation factors:

- Ability to team with relevant state and local aviation-related organizations and large transport commercial aviation industry partners.

- Overhead cost minimization.

- A disciplined COE management plan.

- A plan to implement special emphasis in outreach efforts and partner with minority institutions.

3.7 ***Criterion 7: Training the Applicant(s) Proposes to Carry Out Under the Project***

Evaluation Factors:

- The applicant(s) must submit a brief description of how educational programs will be managed and conducted within the COE, including relationships with large transport commercial aviation industry, standards organizations, government groups, and all partner universities.

- The applicant(s) must provide a typical schedule of how seminars, workshops, short courses, and other training will be developed and conducted, as related to the research projects.

4 CENTER OPERATIONS

The COE must maintain a close working relationship with sponsoring research program offices. This relationship extends to participation in conferences, meetings, joint research efforts, and submission of significant activity reports to the FAA on a routine basis. The COE is required to prepare and submit semiannual reports and a fully inclusive annual report on research projects, other accomplishments, and fiscal expenditures. During the first year, the COE is required to conduct on-site reviews and submit these reports quarterly.

The FAA will require the COE to hold an annual meeting with agency representatives on topics relating to the status and results of the designated research, and a major symposium at the end of each three-year phase. The Center is also required to actively participate in the FAA Joint COE Annual Meeting.

In keeping with the Congressional requirement to disseminate information and the interest expressed by the agency to disseminate and utilize new knowledge, the COE will report on, and participate in, numerous informational activities. These activities may include, but not be limited to:

- Site visits for representatives of key professional, industrial, academic, state or local associations or organizations, members of the media, etc.
- Publications, articles, pamphlets, manuals, books prepared or published, and papers delivered at conferences.
- Local, state, or regional meetings.
- Demonstrations of new or proposed technology.
- Development and presentation of courses, seminars, etc.

These activities may be accomplished in a variety of ways, such as through continuing education programs focused on the aviation community or through university technology transfer organizations.

The grantee will not make any presentations, issue any news releases, grant any interviews, or engage in any other public interface or written publication that implies FAA involvement or support or attributes conclusions to the FAA without prior written permission of the FAA COE Technical Director.

5 ANNUAL RESEARCH REVIEW

The COE shall host an annual review of the research completed and in progress. The annual review includes on-site meetings and briefings conducted by appropriate technical and administrative support personnel. It must focus on the relevance, merit, direction, results, costs, and benefits of research and education efforts in the designated technology area, and include a discussion of potential future projects.

5.1 Annual Report

The COE shall prepare and deliver to the FAA Centers of Excellence Program Director an annual report by project area. The report shall include research results, benefits, and information dissemination efforts; the name and national origin of all research personnel; significant events that were sponsored or attended; journal articles and conference proceedings published throughout the past year; and a brief description of the research intended to be conducted during the following year.

5.2 Duration and Reassessment

The FAA intends to fully support the COE for a period up to ten years. The needs of the agency are reviewed annually and the Center is reassessed every three years. As a result of changing needs, the agency reserves the right to change direction or terminate support for a COE at any time.

The reassessment process focuses on the progress and results of research efforts conducted within the COE during the initial three-year period in relation to the original proposal and the requirements of the agency. A reassessment team indicates the FAA's needs and expectations for continuing research and determines the appropriate funding necessary to continue or change the direction of research projects or COE scope. Consideration is given to the activities supporting information dissemination requirements, technology transfer, and outreach efforts.

The reassessment process concludes with a recommendation for continuation, suspension, or termination. A recommendation for continuation means:

- The reassessment team has found that the COE is advancing the state-of-the-art technological areas specified in this solicitation.
- The FAA continues to have a need for ongoing research that can be satisfied by this COE.
- The FAA is reasonably sure funding will be available to support the next three-year phase.

The reassessment team then recommends that the partnership should continue to be funded for another three-year period. Each Cooperative Agreement is closed out at the end of every three-year period and renegotiated.

The FAA Administrator is immediately notified if the reassessment team recommends suspension or termination. See FAA Order 9550.7A, Aviation Research Grants Program, for additional information on suspension and termination. (http://www.tc.faa.gov/logistics/grants/order.htm)

When a COE is notified of pending termination as a result of completed research requirements, changing needs, or fiscal constraints, the FAA may continue to fund limited research at the COE by awarding standard grants on an annual basis. The partners may maintain the COE designation for a period of three years following notification of termination. During the three-year closeout phase, matching funds are no longer required, and all measures are taken to provide for an orderly shutdown.

6 PROPOSAL PREPARATION AND SUBMISSION

The applicant begins the formal request for grant assistance to become a member of this COE by submitting a proposal.

The FAA expects adherence to the rules of proper scholarship and attribution. The responsibility for proper attribution rests with the authors of the research proposal, all parts of which should be prepared with equal care for this concern. Failure to adhere to such standards can result in disqualification of the proposal. To avoid processing delays, the proposal should be reviewed carefully to include all essential data and required forms.

6.1 Who is Eligible to Submit?

- Accredited institutions of higher education are eligible to submit proposals to become a member of the proposed Center of Excellence.
- Individuals are not eligible for a COE designation and do not qualify for any awards under this program. Graduate students cannot submit proposals, but they are encouraged to serve as research assistants to faculty members.

Prior to final submission, written questions may be faxed to the Centers of Excellence Program Director, Patricia Watts, (609) 485-9430, or via email to patricia.watts@ faa. gov. Questions and answers will be distributed to all participants who request a solicitation package. Verbal questions will not be accepted.

6.2 When to Submit

Proposals may be submitted any time after the effective date of this solicitation. The closing date for submission is November 17, 2003. Proposals postmarked on or before the closing date will be accepted for review.

6.3 What to Submit

The applicant must submit two volumes: *Volume I* containing the Proposal and *Volume II* containing the formal Certifications and Declarations.

Staple proposals in the upper left-hand corner, otherwise leave unbound and submit materials in separate three-ring binders. **Pages are to be numbered at the bottom.** Margins should be 1 inch (2.54 cm) at the top, bottom, and on each side, and text should be in type no smaller than 12 point. Print the original signed copy one sided, with the

exception of original forms. Additional copies of the proposal may be printed on both sides. **Seven copies of each proposal must be submitted in addition to the original**. Attach any reprints, appendices, or other materials to be considered with the proposal to each individual copy of the proposal.

The FAA is not responsible for proposal preparation expenditures incurred by the proposing organization.

The Omnibus Trade and Competitiveness Act of 1988 requires federal agencies to use the metric system in procurement, grants, and other business-related activities. Proposals for grants submitted to the FAA are required to use the metric system of weights and measures. Likewise, reports, publications, and communiqués regarding proposals are required to use metric units.

Assemble proposals in the following sequence:

a. **Cover Letter**. Affix a standard business format cover letter to the front of the proposal. Both the Principal Investigator and a senior-level official at the institution must sign it, in addition to a grants or contracts official.

b. ***Volume I*, Proposal**. The Proposal will consist of a narrative statement (limited to 125 pages) that addresses the Selection Criteria established by Congress and the evaluation factors.

c. ***Volume II*, Certifications and Declarations**. This volume will consist of the following:

   (1) A copy of each team member's latest institutional audit report or letter.

   (2) Standard Form 424, Application for Federal Assistance. The original must be signed by the authorized Organizational Representative.

   (3) FAA Form 9550-1, Cover Sheet for Proposals to the FAA. The original must be signed by the Principal Investigator and any Co-Principal Investigators and endorsed by the authorized Organizational Representative. The original signed copy must be submitted to the FAA with the required forms.

   (4) The signature of the Principal Investigator signifies agreement to assume responsibility for scientific or technical direction of projects and for the preparation of required technical reports. By endorsing the cover sheet, the authorized Organizational Representative affirms on behalf of the proposing organization that all requirements for executing and managing the grant will be met and provides certification regarding federal debt status, debarment and suspension, drug-free workplace, and lobbying activities.

   (5) Certifications for Compliance with the Civil Rights Act of 1964 and Lobbying Restrictions. These certifications are made by signing the cover sheet, FAA Form 9550-1. However, the "Certification Regarding Lobbying" descriptive text page must be attached to complete this certification. OMB Standard Form-LLL, Disclosure of Lobbying Activities, may be required if any funds were expended in lobbying federal officials.

(6) FAA Form 9550-3, Current and Pending Support for Research in Science and Engineering, must be used to identify current project support from all sources (for example, federal, state, or local government agencies, private foundations, industrial, or other commercial organizations). Include the proposed project and all other projects requiring a portion of the time of the Principal Investigator and all other senior personnel, even if they receive no salary support from the project(s). The number of person-months or percentage of effort to be devoted to the research must be stated regardless of source of support.

(7) Indirect Cost Agreement. Provide a copy of the latest institutional indirect cost agreement negotiated with the institution's cognizant Federal audit agency (Department of Health and Human Services, Department of Defense, or other) in force. Applicants must ensure that the costs the FAA is being asked to support are allowable, necessary, and reasonable and that the treatment of direct or indirect costs in the budget is consistent with applicable federal cost principles and with the policies of the submitting organization.

(8) Long-Term Financial Plan. The long-term business and financial plan should detail how the institution proposes to manage the Center of Excellence and generate income from outside sources to achieve financial independence within a ten-year period.

If the proposal being submitted includes work that has been funded previously by a source other than the FAA, the information should be declared. If the proposal is being submitted to other possible sponsors, include a list of them. Concurrent submission of a proposal to other organizations for a similar purpose will not impact review by the FAA.

6.4 Where to Submit.

Send original proposal plus seven copies to:

Patricia Watts, Ph.D.
Director, Centers of Excellence Program
Office of Aviation Research
Federal Aviation Administration
William J. Hughes Technical Center, AAR-400
Atlantic City International Airport, NJ 08405

The outside of each package should be marked "Center of Excellence Proposal." Every effort will be made to promptly reach a decision and to inform the applicants of a decision.

7 PROPOSAL PROCESSING AND EVALUATION

7.1. Acknowledgment/Review

Proposals to establish a COE are assigned a proposal number and the COE Program Office will acknowledge receipt in writing. Proposals are reviewed to ensure that each one contains all elements required of standard and continuing grant proposals and all data are sufficient for the evaluation team to evaluate proposals in accordance with Public Law 101-508.

7.2 Evaluation/Selection

After initial review, the proposal is assessed against the Congressionally defined Selection Criteria and the FAA Evaluation Factors by a team of subject matter experts. The team will consist of at least three government employees with expertise in advanced materials. The team leader is responsible for developing an overall rating based on evaluations of the team members. **Site visits may be scheduled to inspect available resources prior to finalizing the evaluation process or before signing the Cooperative Agreement.**

The FAA COE Program Director may contact the proposing organization to discuss the submission or request further information to assist in assessing the proposal prior to award.

7.3 Ineligible Proposals

Proposals determined to be ineligible for consideration under this solicitation will be returned to the applicant with a written explanation as to why the proposal was determined ineligible.

7.4 Withdrawal

A proposing institution, at any time before an award is made, may withdraw a proposal. The request for withdrawal must be made in writing, stating the reason for withdrawal, and be signed by the Principal Investigator, a grants or contracts official, and a senior-level university official.

8 GRANT AWARD AND ADMINISTRATION

8.1 Types of Awards

Cooperative Agreement — This agreement specifies terms and conditions of the initial three-year period of award and allows award of grants at a specified level. The COE must average a 50 percent cost share during each three-year phase on all funds awarded to *establish, operate, and conduct related research.* A Cooperative Agreement will be prepared and signed by the FAA and each core university member.

Standard Grant — A grant that the FAA agrees to support at a specific level of effort for a specified period of time with no statement of FAA intent to provide additional future support without submission of another proposal. Standard grants may be awarded to a COE following notification of intent to cease funding the long-term partnership. The Office of Primary Interest will establish the level of effort for this Center of Excellence.

8.2 Grant Award

The award instrument(s) will contain all documentation applicable to the award and administration of the grant(s).

8.3 Grant Administration

Program guidance is provided for the COE Cooperative Agreement in the COE Policy Guide. The conditions and provisions of the Cooperative Agreement and the grant award instrument(s) govern the administration grants awarded through the COE Program Office. The COE Program Director also serves as the Grants Officer for all grant awards. The FAA COE Grants Officer may make direct awards to partners and affiliates for the convenience of the government. The Grants Officer also has the authority to make grant awards directly to participating universities for special emphasis outreach efforts.

The grantee has full responsibility for conducting the projects and activities supported under an FAA award and for adherence to the award conditions. The grantee is in the best position to determine the means by which activities and projects can be performed most effectively. The relationship between the FAA and the award recipient, through the Principal Investigator, the FAA COE Program Director, and the FAA and COE Advanced Materials Director is a partnership. Once a COE is established, grantees are encouraged to seek advice and opinions on technical issues, on management and fiscal concerns, and on problems that may arise.

8.4 Direct Awards

In the event that a team submits proposals, direct grants and contracts to university partners and affiliates will be awarded.

9 REQUIRED FORMS

The attached forms are required when submitting grant proposals.

- Standard Form 424, Application for Federal Assistance
- FAA Form 9550-1, Cover Sheet for Proposals to the FAA
- FAA Form 9550-3, Current and Pending Support for Research in Science and Engineering

- Assurance of Compliance with the Civil Rights Act of 1964
- SF-LLL, Disclosure of Lobbying Activities
- Certification Regarding Drug-Free Workplace Requirements

10 E-GRANTS AND ADDITIONAL INFORMATION

For information regarding the FAA Air Transportation Centers of Excellence program and the electronic grants application system, see the website at www.coe.faa.gov

APPENDIX A. REQUIRED FORMS

Standard Form 424, Application for Federal Assistance

FAA Form 9550-1, Cover Sheet for Proposals to the FAA

FAA Form 9550-3, Current and Pending Support for Research in Science and Engineering

Assurance of Compliance with the Civil Rights Act of 1964

SF-LLL, Disclosure of Lobbying Activities

Certification Regarding Drug-Free Workplace Requirements

OMB Approval No. 0348-0043

APPLICATION FOR FEDERAL ASSISTANCE

		2. DATE SUBMITTED	Applicant Identifier
1. TYPE OF SUBMISSION *Application* ☐ Construction ☐ Non-Construction	*Preapplication* ☐ Construction ☐ Non-Construction	3. DATE RECEIVED BY STATE	State Applicant Identifier
		4. DATE RECEIVED BY FEDERAL AGENCY	Federal Identifier

5. APPLICANT INFORMATION

Legal Name:	Organizational Unit:
Address *(give city, county, state, and zip code)*:	Name and telephone number of the person to be contacted on matters involving this application *(give area code)* Technical: Budgetary: , Contractual: ,

6. EMPLOYER IDENTIFICATION NUMBER (EIN):

☐☐ – ☐☐☐☐☐☐☐☐☐

7. TYPE OF APPLICANT: *(enter appropriate letter in box)* ☐

A. State
B. County
C. Municipal
D. Township
E. Interstate
F. Intermunicipal
G. Special District
H. Independent School Dist.
I. State Controlled Institution of Higher Learning
J. Private University
K. Indian Tribe
L. Individual
M. Profit Organization
N. Other (Specify) _____

8. TYPE OF APPLICATION:

☐ New ☐ Continuation ☐ Revision

If Revision, enter appropriate letter(s) in box(es): ☐ ☐

A. Increase Award B. Decrease Award C. Increase Duration
D. Decrease Duration Other *(specify):*

_____

9. NAME OF FEDERAL AGENCY:

10. CATALOG OF FEDERAL DOMESTIC ASSISTANCE NUMBER: ☐☐ • ☐☐☐

TITLE:

11. DESCRIPTIVE TITLE OF APPLICANT'S PROJECT:

12. AREAS AFFECTED BY PROJECT *(cities, counties, states, etc.):*

United States

13. PROPOSED PROJECT:		**14. CONGRESSIONAL DISTRICTS OF:**	
Start Date	Ending Date	a. Applicant	b. Project

15. ESTIMATED FUNDING:		**16. IS SPPLICATION SUBJECT TO REVIEW BY STATE EXECUTIVE ORDER 12372 PROCESS?**
a. Federal	$ .00	a. YES. THIS PREAPPLICATION/APPLICATION WAS MADE AVAILABLE TO THE STATE EXECUTIVE ORDER 12372 PROCESS FOR REVIEW ON: DATE _____
b. Applicant	$ .00	
c. State	$ .00	b. NO. ☐ PROGRAM IS NOT COVERED BY E.O. 12372
d. Local	$ .00	☐ OR PROGRAM HAS NOT BEEN SELECTED BY STATE FOR REVIEW
e. Other	$ .00	
f. Program Income	$ .00	**17. IS THE APPLICANT DELINQUENT ON ANY FEDERAL DEBT?**
g. TOTAL	$ .00	☐ Yes If "Yes," attach an explanation. ☐ No

18. TO THE BEST OF MY KNOWLEDGE AND BELIEF, ALL DATA IN THIS APPLICATION/PREAPPLICATION ARE TRUE AND CORRECT. THE DOCUMENT HAS BEEN DULY AUTHORIZED BY THE GOVERNING BODY OF THE APPLICANT AND THE APPLICANT WILL COMPLY WITH THE ATTACHED ASSURANCES IF THE ASSISTANCE IS AWARDED.

a. Typed Name of Authorized Representative	b. Title	c. Telephone number
d. Signature of Authorized Representative		e. Date Signed

U.S. Department of Transportation
Federal Aviation Administration

COVER SHEET FOR PROPOSALS TO THE FEDERAL AVIATION ADMINISTRATION

Form Approved:
O.M.B. No 2120-0559

a. FOR CONSIDERATION BY FAA ORGANIZATION UNIT Indicate the most specific unit known i.e. program, division, etc.	b. SOLICITATION NUMBER

EMPLOYER IDENTIFICATION NUMBER (EIN) or TAXPAYER IDENTIFICATION NUMBER (TIN)	SHOW PREVIOUS GRANT NUMBER IF THIS IS A SUPPLEMENT TO AN EXISTING GRANT	IS THIS PROPOSAL BEING SUBMITTED TO ANOTHER FEDERAL AGENCY? YES____. NO____. IF YES, LIST ACRONYM(S)

NAME OF ORGANIZATION TO WHICH AWARD SHOULD BE MADE:	INSTITUTION CODE (IF KNOWN)

ADDRESS OF ORGANIZATION (INCLUDE ZIP CODE)

CONGRESSIONAL DISTRICT_____ COUNTY_____

SUBMITTING ORGANIZATION ☐ ACADEMIC INSTITUTION ☐ NON-PROFIT ORG ☐ FOR-PROFIT ORG ☐ OTHER

BRANCH/CAMPUS/OTHER COMPONENT (Where work is performed, if different from above)

TITLE OF PROPOSED PROJECT:

REQUESTED AMOUNT:	c. PROPOSED DURATION	d. REQUESTED STARTING DATE
e. PI/PD DEPARTMENT	f. PI/PD PHONE NUMBER	g. PI/PD FAX NUMBER

NAMES (TYPED)	SOCIAL SECURITY NO.	HIGHEST DEGREE & YEAR	SIGNATURE
PI/PD			
E:MAIL ADDRESS			
CO-PI/PD			
CO-PI/PD			
CO-PI/PD			

By signing and submitting this proposal, the authorized official of the applicant institution is providing certification regarding federal debt status, debarment and suspension, drug-free workplace, and lobbying activities

(If answering "yes" to either, please provide explanation.)	YES	NO
Is the organization delinquent in any Federal debt?		
Is the organization or its principals presently debarred, suspended, proposed for debarment, declared ineligible, or voluntary excluded from covered transactions by any Federal department or agency?		

AUTHORIZED INSTITUTIONAL REPRESENTATIVE	SIGNATURE	DATE
NAME/TITLE (TYPED)		
TELEPHONE NUMBER	FAX NUMBER	

U.S. Department of Transportation
Federal Aviation Administration

CURRENT AND PENDING SUPPORT FOR RESEARCH IN SCIENCE AND ENGINEERING

Form Approved:
O.M.B. No. 2120-0559

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.

I. Name of Principal Investigator	Source of Support	Project Title	Award Amount (or Annual rate)	Period Covered by Award	Person-months or % of Effort Committed to the Project			Location of Research
					ACAD.	SUMM	CAL	

A. Current Support
List - if none, report none

B. Proposals Pending
1. List this Proposal
2. Other pending proposals, including renewal applications.
If none, report none.
3. Proposals planned to be submitted in the near future.
If none, report none.

II. Name of co-principal investigator and/or faculty associate.

A. _____

B. _____

III. Transfer of Support
If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.

IV. Other agencies to which this proposal has been/will be submitted.

AGENCY DISPLAY OF ESTIMATE BURDENS

The public reporting burden for this collection of information is estimated to average 2 hours per response. If you wish to comment on the accuracy of the estimate or make suggestions for reducing this burden, please direct your comments to OMB and the FAA at the following addresses:

Office of Management and Budget
Paperwork Reduction Project (2120-0559)
Washington, DC 20503

Federal Aviation Administration
Office of Research and Technology Application, AAR-201
Atlantic City International Airport, NJ 08405

ASSURANCE OF COMPLIANCE
with
i. FEDERAL AVIATION ADMINISTRATION
UNDER TITLE VI OF THE CIVIL RIGHTS ACT OF 1964

_____ (hereinafter called the "Applicant")
(Name of Applicant)

HEREBY AGREES THAT It will comply with Title VI of the Civil Rights Act of 1964 (P.L. 88-352) and all requirements imposed by or pursuant to the Regulation of the Federal Aviation Administration (49 CFR Part 21) issued pursuant to that title, to the end that, in accordance with Title VI of the Act and the Regulation, no person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity for which the Applicant receives Federal financial assistance from the FAA; and HEREBY GIVES ASSURANCE THAT it will immediately take any measures necessary to effectuate this agreement.

If any real property or structure thereon is provided or improved with the aid of Federal financial assistance extended to the Applicant by the FAA this Assurance shall obligate the Applicant, or in the case of any transfer of such property, any transferee, for the period during which the real property or structure is used for a purpose for which the Federal financial assistance is extended or for another purpose involving the provision of similar services or benefits. If any personal property is so provided, this Assurance shall obligate the Applicant for the period during which it retains ownership or possession of the property. In all other cases, this Assurance shall obligate the Applicant for the period during which the Federal financial assistance is extended to it by the FAA.

THIS ASSURANCE is given in consideration of and for the purpose of obtaining any and all Federal grants, cooperative agreements, loans, contracts, property, discounts or other Federal financial assistance extended after the date hereof to the Applicant by the FAA, including installment payments after such date on account of applications for Federal financial assistance which were approved before such date. The Applicant recognized and agrees that such Federal financial assistance will be extended in reliance on the representations and agreements made in this Assurance. This Assurance is binding on the Applicant, its successors, transferees, and assignees.

PLEASE TYPE OR PRINT	
NAME OF APPLICANT, STREET ADDRESS OR P.O. BOX, CITY, STATE, ZIP CODE	
I CERTIFY THAT THE ABOVE INFORMATION IS COMPLETE AND CORRECT TO THE BEST OF MY KNOWLEDGE	
SIGNATURE AND TITLE OF AUTHORIZED OFFICIAL	DATE

THIS PAGE MUST BE SUBMITTED AS PART OF THE PROPOSAL

CERTIFICATION REGARDING LOBBYING

Certification for Contracts, Grants, Loans, and Cooperative Agreements.

The undersigned* certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned,* to any person for influencing, or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of and Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress or an employee of a Member of Congress in connection with this Federal contract, grant, loan or cooperative agreement, the undersigned* shall complete and submit standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned* shall require that the language of this certification b included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U. S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

Statement for Loan Guarantees and Loan Insurance

The undersigned* states, to the best of his or her knowledge and belief, that:

If any funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this commitment providing for the United States to insure or guarantee a loan, the undersigned* shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

Submission of this statement is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

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*By signing the Cover Sheet and submitting this page as part of the proposal, the applicant is providing Certification Regarding Lobbying

AGENCY DISPLAY OF ESTIMATED BURDEN

The Public report burden for this collection of information is estimated to average 2 hours or less per response. If you wish to comment on the accuracy of the estimate or make suggestions for reducing this burden, please direct your comments to OMB and the FAA at the following address:

Office of Management and Budget
Paperwork Reduction Project
2120-0559
Washington, DC 20503

And

U.S. Department of Transportation
Federal Aviation Administration
Office of Research and Technology, AAR-201
Atlantic City International Airport, NJ 08405

FAA Form 9550-1 (10-95) Supersedes Previous Edition

DISCLOSURE OF LOBBYING ACTIVITIES

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352

(See reverse for public burden disclosure.)

1. Type of Federal Action:
   - ☐ a. contract
   - ☐ b. grant
   - ☐ c. cooperative agreement
   - ☐ d. loan
   - ☐ e. loan guarantee
   - ☐ f. loan insurance

2. Status of Federal Action:
   - ☐ a. bid/offer/application
   - ☐ b. initial award
   - ☐ c. post-award

3. Report Type:
   - ☐ a. initial filing
   - ☐ b. material change

   For Material Change Only:
   year_____quarter_____
   date of last report_____

4. Name and Address of Reporting Entity:
   ☐ Prime ☐ Subawardee
   Tier_____, if known:

   Congressional District, if known:

5. If Reporting Entity in No. 4 is Subawardee, Enter Name and Address of Prime:

   Congressional District, if known:

6. Federal Department/Agency:

7. Federal Program Name/Description

   CFDA Number, if applicable: _____

8. Federal Action Number, if known:

9. Award Amount, if known: $ _____

10.a. Name and Address of Lobbying Entity (if individual, last name, first name, MI):

b. Individuals Performing Service (including address if different from 10a) - (last name, first name, MI):

(attach Continuation Sheet(s) if necessary)

11. Amount of Payment (check all that apply):

$ _____ ☐ actual ☐ planned

12. Form of Payment (check all that apply):

- ☐ a. cash
- ☐ b. in kind; specify: nature _____
  value _____

13. Type of Payment (check all that apply):

- ☐ a. retainer
- ☐ b. one-time fee
- ☐ c. commission
- ☐ d. contingent fee
- ☐ e. deferred
- ☐ f. other, specify:

14. Brief Description of Services Performed or to be Performed and Date (s) of Services, including officer (s), employee(s), or Member(s) contacted, for Payment Indicated in Item 11:

(attach Continuation Sheet(s) if necessary)

15. Continuation Sheet(s) attached: ☐ Yes ☐ No

16. Information required through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. section 1352. This information will be reported to the Congress semiannually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

Signature:

Print Name:

Title:

Telephone No.: Date:

Federal Use Only:

Authorized for Local Reproduction
Standard Form - LLL

INSTRUCTIONS FOR COMPLETION OF SF-LLL, DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime Federal recipient, at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a covered Federal action. Use the SF-LLL-A Continuation Sheet for additional information if the space on the form is inadequate. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence the outcome of a covered Federal action.

2. Identify the status of the covered Federal action.

3. Identify the appropriate classification of this report. If this is a follow-up report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered Federal action.

4. Enter the full name, address, city, state and zip code of the reporting entity. Include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if it is, or expects to be, a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the 1st tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.

5. If the organization filing the report in item 4 checks “Subawardee”, then enter the full name, address, city, state and zip code of the prime Federal recipient. Include Congressional District, if known.

6. Enter the name of the Federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.

7. Enter the Federal program name or description for the covered Federal action (item 1). If know, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.

8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Proposal (RFP) number; Invitation for Bid (IFB) number; grant announcement number; the contract, grant, or loan award number; the application/proposal control number assigned by the Federal agency). Include prefixes, e.g., "RFP-DE-90-001".

9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitment for the prime entity identified in item 4 or 5.

10. (a) Enter the full name, address, city, state and zip code of the lobbying entity engaged by the reporting entity identified in item 4 to influence the covered Federal action.

(b) Enter the full names of the individual(s) performing services, and include full address if different from 10 (a). Enter Last Name, First Name, and Middle Initial (MI).

11. Enter the amount of compensation paid or reasonably expected to be paid by the reporting entity (item 4) to the lobbying entity (item 10). Indicate whether the payment has been made (actual) or will be made (planned). Check all boxes that apply. If this is a material change report, enter the cumulative amount of payment made or planned to be made.

12. Check the appropriate box(es). Check all boxes that apply. If payment is made through an in-kind contribution, specify the nature and value of the in-kind payment.

13. Check the appropriate box(es). Check all boxes that apply. If other, specify nature.

14. Provide a specific and detailed description of the services that the lobbyist has performed, or will be expected to perform, and the date(s) of any services rendered. Include all preparatory and related activity, not just time spent in actual contact with Federal officials. Identify the Federal official(s) or employee(s) contacted or the officer(s), employee(s), or Member(s) of Congress that were contacted.

15. Check whether or not a SF-LLL-A Continuation Sheet(s) is attached.

16. The certifying official shall sign and date the form, print his/her name, title, and telephone number.

CERTIFICATION REGARDING DRUG-FREE WORKPLACE REQUIREMENTS (GRANTEES OTHER THAN INDIVIDUALS)

This certification is required by the regulations implementing the Drug-Free Workplace Act of 1986, 49 CFR 29, Subpart F. These require certification by grantees, prior to award, that they will maintain a drug-free workplace. The certification set out below is a material representation of fact upon which reliance will be placed when the agency determines to award the grant. False certification or violation of the certification shall be grounds for suspension of payment, suspension or termination of grants, or governmentwide suspension or debarment

The grantee certifies that it will provide a drug-free workplace by:

a) Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the grantee's workplace and specifying the actions that will be taken against employees for violation of such prohibition;

b) Establishing a drug-free awareness program to inform employees about-

    1) The dangers of drug abuse in the workplace;
    2) The grantee's policy of maintaining a drug-free workplace;
    3) Any available drug counseling, rehabilitation, and employee assistance programs; and,
    4) The penalties that may be imposed upon employees for drug abuse violation occurring in the workplace;

c) Making a requirement that each employee to be engaged in the performance of the grant be given a copy of the statement required by paragraph (a);

d) Notifying the employee in the statement required by paragraph (a) that, as a condition of employment under the grant, the employee will-

    1) Abide by the terms of the statement; and
    2) Notify the employer of any criminal drug statute conviction for a violation occurring in the workplace no later than five days after such conviction:

e) Notifying the agency within ten days after receiving notice under subparagraph (d) (2), from an employee or otherwise receiving actual notice of such conviction;

f) Taking one of the following actions, within 30 days of receiving notice under subparagraph (d) (2), with respect to any employee who is convicted-

    1) Taking appropriate personnel action against such an employee, up to and including termination; or
    2) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State or local health, law enforcement, or other appropriate agency;

g) Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs (a), (b), (c), (d), (e), and (f).